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RESEARCH ARTICLE

Genetic analysis of drought tolerance rice genotypes under diverse ecosystem (*Oryza sativa* L.)

■ SANGEETA TETWAR, RUPLATA GUPTA, NIDHI KOSHTA AND S.B. VERULKAR

SUMMARY

Drought is the most divesting one and the most recalcitrant abiotic stress to the breeder's effort. In its different forms, it is the source of one third of the yield losses from technical constraints for rice in Eastern India. The present study was undertaken to carry out the genetic analysis of 45 rice genotypes, which included advanced breeding material and standard checks during *Kharif* 2011 for drought tolerance, and to find out the association of different morpho- physiological traits with grain yield under managed different levels of water stress conditions. The mean performance of three environmental conditions indicates substantial reduction in yield under rainfed direct seeded condition and terminal stage drought condition. The analysis of variance showed highly significant difference among the genotypes for all the traits under all the locations. The genotype IR 84887-B-15 performed well under irrigated (transplanted) condition. It was found that genotype R-RF-65 did well under rainfed condition and genotype R-RF-78 performed well under terminal stage drought condition. So concluded that genotype IR 84887-B-15 consistently performed well under irrigated control and terminal stage drought condition, therefore, it is one of good genotype had drought tolerance capacity. The magnitude of PCV estimates was higher than GCV estimates whereas moderate GCV along with PCV was recorded for grain yield followed by number of filled grains per panicle. The high heritability estimates were observed for the characters *viz*., days to 50% flowering and grain yield and the traits like grain yield, biological yield and harvest index showed high genetic advance as percentage of mean.

Key Words : Drought tolerance, Variance, GCV, PCV, Heritability, Genetic advance, Diverse ecosystem

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MEMBERS OF THE RESEARCH FORUM

Author to be contacted :
SANGEETA TETWAR, Department of Genetics and Plant Breeding, Indira Gandhi Krishi Vishwavidyalaya, RAIPUR (C.G.) INDIA
Email: sangeeta.tiwari999@gmail.com

Address of the Co-authors:
RUPLATA GUPTA, NIDHI KOSHTA, Department of Genetics and Plant Breeding, Indira Gandhi Krishi Vishwavidyalaya, RAIPUR (C.G.) INDIA
Email: ruplatagupta@gmail.com; neekos09@gmail.com

S.B. VERULKAR, Department of Molecular Breeding and Plant Biotechnology, Indira Gandhi Krishi Vishwavidyalaya, RAIPUR (C.G.) INDIA
Email : satishverulkar@ gmail.com